



Wetland Monitoring Report

Project Site:
Eckmann/Bischoff Wetland Mitigation Site,
Madison County, Illinois - 2011



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February 2012



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Project Summary

Monitoring of the Eckmann/Bischoff Wetland Mitigation Site, Madison County, Illinois, was completed on 24 October 2011. All potential wetlands and all plant communities within the specified project area were examined. Six sites met the three criteria of a wetland established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and were, therefore, determined to be wetlands. Four plant communities were identified at the site: marsh, wet floodplain forest, shrubland and wet meadow. Summary information regarding the wetland determination sites is presented in the wetland monitoring report. Wetland determination forms are found in Appendix A and wetland site plant species lists are included in Appendix B. Wetland boundaries were recorded using a Trimble Global Positioning System. The spatial data have been digitally uploaded to the Illinois Site Assessment Tracking System (http://frotycap.isgs.uiuc.edu/idot_extranet). Locations of determination sites were overlaid on a digital orthophoto quadrangle (DOQ) using ArcGIS; the resulting figure is included in Appendix C. Additional maps and figures are also included in Appendix C. In addition, the status of the decurrent false aster (*Boltonia decurrens*) at the site is discussed.

Signed: 
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Cover Photo: Facing northwest overlooking Wetland Site 1.

Introduction and Site Description

Wetland mitigation site monitoring was conducted on the Eckmann/Bischoff Wetland Mitigation Site, located approximately 1.4 mi west of Collinsville, in southwestern Madison County, Illinois (Appendix C, Figure 1). The site consists of two adjacent areas that were acquired by the Illinois Department of Transportation (IDOT) for mitigation of lost wetlands. The Eckmann Property was acquired in 1995 and the Bischoff Property in 1997. Prior to acquisition by IDOT, both sites were cropland. Since acquisition, both sites have been allowed to revert to natural vegetation; nothing has been planted at either site.

The Eckmann/Bischoff Wetland Mitigation Site is approximately 59.46 acres in size and is located in the American Bottoms, the broad floodplain of the Mississippi River east of St. Louis. The pre-settlement environment of this area consisted of bottomland forest, marsh, wet prairie and mesic prairie (Schwegman et al. 1973). Oxbow lakes and sloughs were also common in this region, with many of them persisting to this day. The Eckmann/Bischoff Wetland Mitigation Site is located within a sediment-filled oxbow of the Mississippi River (Rorick, 1994).

Bordering the Eckmann-Bischoff Wetland Mitigation Site to the south is Schneider Ditch. A large, wet floodplain forest called Levee Lake is located to the south of Schneider Ditch. Levee Lake was recognized as a natural area by the Illinois Natural Areas Inventory. A grade B shrub swamp/pond occurs within the natural area. To the east of the Eckmann-Bischoff Wetland Mitigation Site are another drainage ditch and a wet floodplain forest (the Radic Property). The area north of the site is marsh and cropland. West of the site is the Cahokia Canal. A levee with steep embankments separates the site from the canal.

Several reports on this site have been previously submitted. Rorick (1994) evaluated the potential for wetland hydrology on the Eckmann Property. Mitigation site assessments were completed for the Eckmann Property (Plocher, Ketzner and Keene 1995) and for the Bischoff Property (Keene and Ketzner 1997). Vegetation cover type mapping and a wetland survey were conducted by Ketzner et al. (2001). Monitoring wells have been installed, and the Illinois State Geological Survey (ISGS) has been collecting data to assess the hydrology of the site. Wells were first installed on the Eckmann Property in early 1997 and on the Bischoff Property midway into the growing season of 2000. The ISGS has submitted several reports detailing results of hydrologic monitoring. The Illinois Natural History Survey (INHS) monitored the site in 2002 (Larimore et al. 2002) and 2003 (Larimore et al. 2004). Monitoring was discontinued for several years but resumed in 2008.

The mitigation site assessment was conducted on the Eckmann Property in November of 1994 (Plocher, Ketzner and Keene 1995). At that time, the site was a wet agricultural field that had not been cropped that growing season. The site was mostly dominated by weedy herbaceous species typical of disturbed, wet sites. A mitigation site assessment for the Bischoff Property was conducted in April of 1997 (Keene and Ketzner 1997). At that time, the site was fallow cropland that was planted the previous season. Vegetation consisted of a low cover of herbaceous species, most of which were annuals. No woody plants were present. In 2000,

three vegetation cover types were found at the site: marsh, wet shrubland and forbland (Ketzner et al. 2001).

For 2011, field monitoring of the mitigation site was conducted on 24 August and 24 October. This report details results of the fourth continuous year of monitoring. Results of other years of monitoring can be found in Larimore et al. (2002), Larimore et al. (2004), Larimore et al. (2008), Larimore et al. (2010) and Larimore, Plocher and Marcum (2011). Monitoring will continue on the site until further notice is received from the IDOT, and additional annual reports will follow.

Methods

All potential wetlands within the specified study area were examined. Characteristics of vegetation, soils, hydrology and topography were evaluated during field investigation and on-site wetland determination. Locations of observation points for wetland determinations were selected based on plant community borders and topographic changes. The following sources were examined while surveying the project corridor to determine wetland locations and boundaries: aerial photographs; U.S. Geological Survey topographic map (Monks Mound 7.5 minute quadrangle); National Wetlands Inventory (NWI) map (Monks Mound 7.5 minute quadrangle) (U.S. Fish and Wildlife Service); Illinois Wetlands Inventory (U.S. Fish and Wildlife Service, Illinois Department of Natural Resources, Illinois Natural History Survey 1996); *National List of Plant Species that Occur in Wetlands: Illinois* (Reed 1988); *Revisions of the National List of Plant Species that Occur in Wetlands* (Reed 1997); the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987); the USDA-NRCS *Official Series Descriptions*; and the USDA-NRCS *Web Soil Survey*. Positional inaccuracies are known to occur with downloaded sources of digital data listed above. As presented on maps and figures in this report, data can be shifted from their actual position when compared to modern aerial photography.

Wetland determinations were conducted using definitions and guidelines established in the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Data from these determinations were recorded on U. S. Army Corps of Engineers' Wetland Determination Data Forms (Appendix A); a data form was completed for each wetland. All potential wetlands, including all areas mapped as wetlands by the NWI, were described. Results of these determinations are summarized in the following text. Adjacent upland areas were also investigated; forms were not completed for these areas. Determination of dominant vegetation was based on visual estimates of percent cover of plant species within the vegetation unit as a whole. Comprehensive plant species lists were compiled for each wetland delineation site and are presented in Appendix B.

Personnel from the Illinois State Geological Survey (ISGS), using a ground-water and surface-water monitoring network, have monitored hydrology of the site yearly since 2009. Their data, along with our observations of wetland hydrology field indicators, were used in making wetland determinations. A copy of the ISGS estimated areal extent of 2011 wetland hydrology can be found in Appendix C (Figure 5).

Wetland boundaries were recorded using a Trimble Global Positioning System (either model Pathfinder Pro XR or Pathfinder Pro XRS), with a presumed accuracy of +/- 0.5 m under optimal field conditions. Spatial data were digitally uploaded to the Illinois Site Assessment Tracking System (http://froscopycap.isgs.uiuc.edu/idot_extranet). Locations of determination sites were overlaid on a digital orthophoto quadrangle (DOQ) and approximate area was determined for each wetland site using ArcGIS 10.0 software (ESRI 2010). Resulting areas are calculated in acres, reported to two decimal places.

Each native plant species was assigned a “coefficient of conservatism” (C) (Taft et al. 1997), a subjective rating of species fidelity to undegraded natural communities, ranging from zero to ten. Conservative species - those more likely to be found in “pristine” natural areas - were assigned high numbers, whereas non-conservative species - those that occur in anthropogenically disturbed areas - were given lower numbers. Non-native species and those not identifiable to species level were not assigned a rating. The Floristic Quality Index (FQI) is computed as $FQI = (\text{mean } C) \times (\sqrt{N})$, where mean C is the mean coefficient of conservatism for all native plant species at a site and N is the total number of native plant species at the site. In very general terms, higher FQI values for plant communities indicate more similarity to “pristine” natural areas, as compared to those communities with lower FQI values. Botanical nomenclature follows *Vascular Flora of Illinois* (Mohlenbrock 2002).

Vegetation

Four plant communities are present within the project area (Table 1). The marsh is the largest plant community at the site (Appendix C, Figure 4), covering approximately 32.21 acres. It occurs on the lowest ground of the site and is subject to frequent and prolonged inundation. Tall graminoid plants dominate this community, and woody plants are infrequent. The dominant plants are river bulrush (*Bolboschoenus fluviatilis*), galingale (*Cyperus odoratus*) and narrow-leaved cattail (*Typha angustifolia*). The FQI for this community is 18.1 and the mean C value is 2.7 (Appendix B, Site 1). These values are indicative of fair natural quality. The marsh meets all wetland criteria and, therefore, was determined to be a wetland.

Wet floodplain forest can be found in four areas of the site (Appendix C, Figure 4). This forest is relatively young growth, with all of the trees less than 20 years old. The four areas of wet floodplain forest together cover approximately 19.43 acres of the site. Dominant woody plants are green ash (*Fraxinus lanceolata*), sycamore (*Platanus occidentalis*), cottonwood (*Populus deltoides*), peach-leaved willow (*Salix amygdaloides*) and sandbar willow (*Salix interior*). Dominant herbs vary between the four areas (Table 1). The four areas of wet floodplain forest meet all wetland criteria and, therefore, were determined to be wetlands.

The shrubland community is located on the highest ground at the Eckmann/Bischoff Wetland Mitigation Site, and is the only plant community at the site that is not wetland. This community is dominated by shrubby eastern red cedar (*Juniperus virginiana*) and white mulberry (*Morus alba*) and the herbs giant ragweed (*Ambrosia trifida*), Jerusalem artichoke (*Helianthus tuberosus*), sericea lespedeza (*Lespedeza cuneata*) and Canada goldenrod (*Solidago*

canadensis). The FQI for this community is 20.0 and the mean C value is 2.4 (Appendix B, Site 5). These values are indicative of good natural quality. The shrubland community covers approximately 5.49 acres of the site (Appendix C, Figure 4).

The wet meadow community is dominated by the herbs swamp marigold (*Bidens aristosa*), shoreline sedge (*Carex hyalinolepis*), rice cutgrass (*Leersia oryzoides*) and common reed (*Phragmites australis*). The FQI for this community is 16.1 and the mean C value is 2.9 (Appendix B, Site 7). These values are indicative of fair natural quality. This plant community covers approximately 2.31 acres of the site (Appendix C, Figure 4). The wet meadow meets all wetland criteria and, therefore, was determined to be a wetland.

Table 1. Plant communities within the project area.

A Marsh (Wetland Site 1)

Dominant Plant Species

Herbs - *Bolboschoenus fluviatilis*, *Cyperus odoratus* and *Typha angustifolia*

B Wet Floodplain Forest (Wetland Sites 2, 3, 4 and 6)

Dominant Plant Species

Trees - *Fraxinus lanceolata*, *Platanus occidentalis*, *Populus deltoides* and *Salix amygdaloides*

Saplings - *Fraxinus lanceolata*, *Populus deltoides* and *Salix interior*

Herbs - *Ambrosia trifida*, *Aster lanceolatus*, *Carex hyalinolepis*, *Echinochloa muricata*, *Helianthus tuberosus*, *Leersia oryzoides*, *Lespedeza cuneata*, *Phragmites australis*, *Toxicodendron radicans* and *Typha angustifolia*

C Shrubland (Site 5)

Dominant Plant Species

Sapling/Shrub - *Juniperus virginiana* and *Morus alba*

Herbs - *Ambrosia trifida*, *Helianthus tuberosus*, *Lespedeza cuneata* and *Solidago canadensis*

D Wet Meadow (Wetland Site 7)

Dominant Plant Species

Herbs - *Bidens aristosa*, *Carex hyalinolepis*, *Leersia oryzoides* and *Phragmites australis*

Soils

The soil survey of Madison County (Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture) originally had Beaucoup silty clay loam, Wakeland silt loam and Birds silt loam mapped at this site. After conducting the field investigation of the site, it was determined that Birds silt loam, Otter silt loam, Beaucoup silty clay loam and Petrolia silty clay loam were present in this area. All these soils are bottomland poorly (hydric) drained soils. Soil permeability is moderate to moderately slow in all of the soils mentioned above. All of these soils are rated as good for potential for wetland plants and wetland wildlife. Water table depth varied with each site. More detailed soils information can be found within the wetland determination forms (Appendix A).

Hydrology

The hydrologic inputs at this site appear to be precipitation, sheet flow from higher ground to the north (cropland) and west (the levee), from overflow of a wetland to the east (the Radic Property), and from backflow via Schneider Ditch through a culvert (Rorick 1994). Schneider Ditch empties into the Cahokia Canal near the southwest corner of the site. During periods of high water in the Cahokia Canal, parts of the mitigation site probably receive flooding from the canal as backflow via Schneider Ditch. In addition, the Cahokia Canal is subject to backwater flooding from the Mississippi River (Rorick 1994). Although within its historical floodplain, the area no longer receives direct flooding from the Mississippi River because of a levee system.

Water leaves the site by way of soil infiltration, evapotranspiration, and by sheet flow into Schneider Ditch. Inundation of the Eckmann/Bischoff Wetland Mitigation Site appears to be highest when beaver dam Schneider Ditch, resulting in increased backflow onto the site. When beaver dams are broken as part of ditch maintenance, sheet flow away from the mitigation site increases. Beaver dams were observed on Schneider Ditch in November of 2010 (Larimore, Plocher and Marcum 2011). However, no functioning dams were found in 2011. An old beaver dam was located but it had been breached, apparently during ditch maintenance. At the time of the field survey, water levels were very low, with only a small amount of standing water near the old culvert site feeding into Schneider Ditch.

Miner et al. (2011) estimated that the entire site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and the area of the site that satisfied wetland hydrology for more than 12.5% of the 2011 growing season was estimated to be 27.9 acres (Appendix C, Figure 5). In 2010, the area of the site that satisfied the wetland hydrology criteria for more than 5% of the growing season was 55.9 acres, and the area of the site that satisfied the wetland hydrology criteria for more than 12.5% of the growing season was 51.6 acres (Miner et al. 2010). Fucciolo et al. (2009) estimated that the entire site satisfied the wetland hydrology criteria for more than 5% of the 2009 growing season, while the area of the site that satisfied the wetland hydrology criteria for more than 12.5% of the growing season was 56.0 acres.

The USGS hydrologic unit code for this basin is 07140101 (Cahokia-Joachim. Illinois, Missouri). The watershed size of the Cahokia Canal at the point where Schneider Ditch empties into it is approximately 51.3 mi².

Wetland Site Summaries

Site Number: 1

Community type: **Marsh**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 70 ft east of levee**

Hydrophytic vegetation? **Yes** Hydric soils? **Yes** Wetland hydrology? **Yes**

Is this site a wetland? **Yes**

Site area: **32.21 acres**

Mean Coefficient of Conservatism (mean C): **2.7** Floristic Quality Index (FQI): **18.1**

Site Number: 2

Community type: **Wet Floodplain Forest**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 62 ft north of Schneider Ditch**

Hydrophytic vegetation? **Yes** Hydric soils? **Yes** Wetland hydrology? **Yes**

Is this site a wetland? **Yes**

Site area: **0.39 acre**

Mean Coefficient of Conservatism (mean C): **2.4** Floristic Quality Index (FQI): **11.8**

Site Number: 3

Community type: **Wet Floodplain Forest**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 463 ft east of levee**

Hydrophytic vegetation? **Yes** Hydric soils? **Yes** Wetland hydrology? **Yes**

Is this site a wetland? **Yes**

Site area: **7.68 acres**

Mean Coefficient of Conservatism (mean C): **2.1** Floristic Quality Index (FQI): **12.0**

Site Number: 4

Community type: **Wet Floodplain Forest**

National Wetlands Inventory code: **U (upland)**

Site location: **Approximately 40 ft east of levee**

Hydrophytic vegetation? **Yes** Hydric soils? **Yes** Wetland hydrology? **Yes**

Is this site a wetland? **Yes**

Site area: **11.19 acres**

Mean Coefficient of Conservatism (mean C): **2.9** Floristic Quality Index (FQI): **24.0**

Comments: **Two plants of the decurrent false aster (*Boltonia decurrens*) were found at this site.**

Site Number: 5Community type: **Shrubland**National Wetlands Inventory code: **U (upland)**Site location: **Approximately 58 ft east of levee**Hydrophytic vegetation? **No**Hydric soils? **Yes**Wetland hydrology? **No**Is this site a wetland? **No****Site Number: 6**Community type: **Wet Floodplain Forest**National Wetlands Inventory code: **U (upland)**Site location: **Approximately 81 ft east of levee**Hydrophytic vegetation? **Yes**Hydric soils? **Yes**Wetland hydrology? **Yes**Is this site a wetland? **Yes**Site area: **0.17 acres**Mean Coefficient of Conservatism (mean C): **2.5**Floristic Quality Index (FQI): **16.1****Site Number: 7**Community type: **Wet Meadow**National Wetlands Inventory code: **U (upland)**Site location: **Approximately 55 ft east of levee**Hydrophytic vegetation? **Yes**Hydric soils? **Yes**Wetland hydrology? **Yes**Is this site a wetland? **Yes**Site area: **2.31 acres**Mean Coefficient of Conservatism (mean C): **2.9**Floristic Quality Index (FQI): **16.1****Threatened/Endangered Species and Natural Communities of Special Interest**

Two plants of the decurrent false aster (*Boltonia decurrens*) were found in 2011 at Wetland Site 4 (wet floodplain forest). The decurrent false aster is currently listed as federally threatened and threatened within the state of Illinois (U. S. Fish and Wildlife Service 1990, Illinois Endangered Species Protection Board 2005). This plant was first reported from the Eckmann/Bischoff Wetland Mitigation Site by Ketzner et al. (2001). At that time, two plants were located in the forbland community, in what is now Wetland Site 3 (wet floodplain forest). However, no plants were found in Wetland Site 3 in 2011.

No natural communities of special interest were noted.

Discussion

Based on our fieldwork and well data collected by the Illinois State Geological Survey, we estimate that approximately 53.95 acres of the site satisfied all wetland criteria in 2011. Miner et al. (2011) estimated that the entire site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and the area of the site that satisfied wetland hydrology for more than 12.5% of the 2011 growing season was estimated to be 27.9 acres (Appendix C,

Figure 5). Although the entire site satisfied the wetland hydrology criteria for more than 5% of the growing season, not all of it has dominant hydrophytic vegetation. Dominants in the shrubland community (Wetland Site 5) include three species that are not hydrophytes: eastern red cedar (*Juniperus virginiana*), sericea lespedeza (*Lespedeza cuneata*) and Canada goldenrod (*Solidago canadensis*). The shrubland is located on the highest ground at the Eckmann/Bischoff Wetland Mitigation Site, in an area that has not had dominant hydrophytic vegetation anytime since our involvement with this project began (Keene and Ketzner 1997; Ketzner et al. 2001; Larimore, Plocher and Marcum 2011). Given the relatively high topography of the area, it seems unlikely that dominant hydrophytic vegetation will develop anytime soon. Hydric soils appear to be present throughout the entire wetland compensation area.

Vegetation quality of the plant communities at the site ranges from fair to good (Appendix B), and decurrent false aster (*Boltonia decurrens*), a federally threatened species, was relocated at the site in 2011. However, the non-native common reed (*Phragmites australis*), narrow-leaved cattail (*Typha angustifolia*), and sericea lespedeza (*Lespedeza cuneata*) continue to be dominant in one or more of the plant communities at the site. Larimore, Plocher and Marcum (2011) recommended the use of glyphosate for control of common reed. However, given the current abundance of this noxious weed at the site, it seems unlikely that control with herbicide will be possible.

This report details results of the fourth consecutive year of monitoring at this site. If more intensive monitoring is needed, the IDOT should notify the Illinois Natural History Survey prior to the beginning of the growing season. Monitoring will continue at this site until further notice is received.

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APPENDIX A

Wetland Determination Forms

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: Sec. 25, T3N, R9W
Location: 70 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Bolboschoenus fluviatilis</i>	OBL	herb
2. <i>Cyperus odoratus</i>	OBL	herb
3. <i>Typha angustifolia</i>	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Wakeland silt loam and Beaucoup silty clay loam, classified as Petrolia silty clay loam

On Madison County hydric soils list?	Yes:	No: X
Is the soil a histosol?	Yes:	No: X
Histic epipedon present?	Yes:	No: X
Redox concentrations:	Yes: X	No:
Redox depletions:	Yes:	No: X
Matrix color: N 4/		

Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:
Rationale: This soil has a gleyed matrix and iron masses. This soil meets the NRCS hydric soil indicator F2 (loamy gleyed matrix).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 1 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Marsh
Legal Description: Sec. 25, T3N, R9W
Location: 70 ft east of levee

HYDROLOGY

Inundated? Yes: X (in part) No: Depth of standing water: to approximately 3 in
Depth to saturated soil: at surface to approximately 25 in
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and possibly from backflow via Schneider Ditch (Rorick 1994). Water leaves the site via evapotranspiration and by sheet flow into Schneider Ditch.
Size of watershed: < 5 mi²
Other field evidence observed: This site is lower than ground to the north and the west. Well data indicated that most of this site satisfied the wetland hydrology criteria for more than 12.5% of the 2011 growing season (Miner et al. 2011). All of the site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and has dominant hydrophytic vegetation and hydric soils.

Wetland hydrology: Yes: X No:
Rationale: The relatively low landscape position and well data collected throughout the 2011 growing season indicate that wetland hydrology is present. In our opinion, this site is flooded or saturated long enough to meet the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 62 ft north of Schneider Ditch

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Fraxinus lanceolata</i>	FACW	tree
2. <i>Fraxinus lanceolata</i>	FACW	sapling
3. <i>Echinochloa muricata</i>	OBL	herb
4. <i>Leersia oryzoides</i>	OBL	herb
5. <i>Typha angustifolia</i>	OBL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Beaucoup silty clay loam, classified as Petrolia silty clay loam

On Madison County hydric soils list? Yes: No: X

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No:

Redox depletions: Yes: No: X

Matrix color: N 4/

Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:

Rationale: This soil has a gleyed matrix and iron masses. This soil meets the NRCS hydric soil indicator F2 (loamy gleyed matrix).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 2 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 62 ft north of Schneider Ditch

HYDROLOGY

Inundated? Yes: No: X Depth of standing water: n/a

Depth to saturated soil: to approximately 40 in

Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from nearby higher ground, and possibly from backflow via Schneider Ditch (Rorick 1994). Water leaves the site via evapotranspiration and sheet flow onto adjacent lower ground (Wetland Site 1).

Size of watershed: < 5 mi²

Other field evidence observed: In 2011, this site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). Oxidized root zones, water-stained leaves, water marks and water-borne sediment deposits were observed at this site.

Wetland hydrology: Yes: No: X

Rationale: Well data collected throughout the 2011 growing season and other field evidence indicate that wetland hydrology is present. In our opinion, this site is flooded or saturated long enough to meet the wetland hydrology criterion.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:

Rationale for decision: Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 463 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Populus deltoides</i>	FAC+	tree
2. <i>Salix amygdaloides</i>	FACW	tree
3. <i>Populus deltoides</i>	FAC+	sapling
4. <i>Salix interior</i>	OBL	sapling
5. <i>Carex hyalinolepis</i>	OBL	herb
6. <i>Leersia oryzoides</i>	OBL	herb
7. <i>Phragmites australis</i>	FACW+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:
Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: Beaucoup silty clay loam
On Madison County hydric soils list? Yes: No: X
Is the soil a histosol? Yes: No: X
Histic epipedon present? Yes: No: X
Redox concentrations: Yes: X No:
Redox depletions: Yes: No: X
Matrix color: N 4/
Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:
Rationale: This soil has a mollic surface matrix with iron masses. This soil meets the NRCS hydric soil indicator F6 (redox dark surface).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 3 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 463 ft east of levee

HYDROLOGY

Inundated? Yes: No: X Depth of standing water: n/a
Depth to saturated soil: to approximately 50 in
Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from nearby higher ground, and possibly from backflow via Schneider Ditch (Rorick 1994). Water leaves the site via evapotranspiration and sheet flow onto adjacent lower ground (Wetland Site 1).
Size of watershed: < 5 mi²
Other field evidence observed: In 2011, none of the site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). However, it did satisfy the wetland hydrology criteria for more than 5% of the growing season, and has dominant hydrophytic vegetation and hydric soils. Water marks and morphological plant adaptations (adventitious roots on *Salix nigra*) were observed at this site.

Wetland hydrology: Yes: X No:
Rationale: This site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and also has hydrophytic vegetation and hydric soils.

DETERMINATION AND RATIONALE:

Is the site a wetland? Yes: X No:
Rationale for decision: Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 40 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Fraxinus lanceolata</i>	FACW	tree
2. <i>Populus deltoides</i>	FAC+	tree
3. <i>Fraxinus lanceolata</i>	FACW	sapling
4. <i>Aster lanceolatus</i>	FACW	herb
5. <i>Leersia oryzoides</i>	OBL	herb
6. <i>Phragmites australis</i>	FACW+	herb
7. <i>Toxicodendron radicans</i>	FAC+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Beaucoup silty clay loam and Wakeland silt loam, classified as Otter silt loam

On Madison County hydric soils list? Yes: No: X

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No:

Redox depletions: Yes: No: X

Matrix color: N 4/

Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:

Rationale: This soil has a mollic surface with iron masses. This soil meets the NRCS hydric soil indicator F6 (redox dark surface).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 4 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 40 ft east of levee

HYDROLOGY

Inundated? Yes: No: X

Depth of standing water: n/a

Depth to saturated soil: > 40 in

Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and possibly from backflow via Schneider Ditch. Water leaves the site via evapotranspiration and sheet flow onto adjacent lower ground (Wetland Site 1).

Size of watershed: < 5 mi²

Other field evidence observed: In 2011, none of the site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). However, it did satisfy the wetland hydrology criteria for more than 5% of the growing season, and has dominant hydrophytic vegetation and hydric soils. Water-stained leaves, water marks and morphological plant adaptations (adventitious roots on *Acer saccharinum*) were observed at this site.

Wetland hydrology: Yes: X No:

Rationale: This site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and also has hydrophytic vegetation and hydric soils.

DETERMINATION AND RATIONALE:

Is the site a wetland?

Yes: X No:

Rationale for decision:

Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 5 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Shrubland
Legal Description: Sec. 25, T3N, R9W
Location: 58 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Morus alba</i>	FAC	sapling/shrub
2. <i>Juniperus virginiana</i>	FACU	sapling/shrub
3. <i>Ambrosia trifida</i>	FAC+	herb
4. <i>Helianthus tuberosus</i>	FAC	herb
5. <i>Lespedeza cuneata</i>	UPL	herb
6. <i>Solidago canadensis</i>	FACU	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 50%

Hydrophytic vegetation: Yes: No: X

Rationale: Only 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Wakeland silt loam, Birds silt loam and Beaucoup silty clay loam, classified as Birds silt loam

On Madison County hydric soils list?	Yes: X	No:
Is the soil a histosol?	Yes:	No: X
Histic epipedon present?	Yes:	No: X
Redox concentrations:	Yes: X	No:
Redox depletions:	Yes:	No: X

Matrix color: 10YR 4/1

Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:

Rationale: This soil has a depleted matrix with iron masses. This soil meets the NRCS hydric soil indicator F3 (depleted matrix).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 5 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Shrubland
Legal Description: Sec. 25, T3N, R9W
Location: 58 ft east of levee

HYDROLOGY

Inundated? Yes: No: X

Depth of standing water: n/a

Depth to saturated soil: > 40 in

Overview of hydrological flow through the system: This site receives water through precipitation and sheet flow from adjacent higher ground (a levee). Water leaves the site via evapotranspiration and sheet flow onto adjacent lower ground (Wetland Sites 1, 6 and 7).

Size of watershed: < 5 mi²

Other field evidence observed: In 2011, none of the site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). It did satisfy the wetland hydrology criteria for more than 5% of the growing season and has hydric soils. However, dominant hydrophytic vegetation is absent.

Wetland hydrology: Yes: No: X

Rationale: Although this site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, it does not have dominant hydrophytic vegetation.

DETERMINATION AND RATIONALE:

Is the site a wetland?

Yes: No: X

Rationale for decision:

Although hydric soils are present, dominant hydrophytic vegetation and wetland hydrology are absent. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 6 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 81 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Platanus occidentalis</i>	FACW	tree
2. <i>Ambrosia trifida</i>	FAC+	herb
3. <i>Helianthus tuberosus</i>	FAC	herb
4. <i>Lespedeza cuneata</i>	UPL	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 75%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Beaucoup silty clay loam and Birds silt loam, classified as Birds silt loam

On Madison County hydric soils list? Yes: X No:
Is the soil a histosol? Yes: No: X
Histic epipedon present? Yes: No: X
Redox concentrations: Yes: X No:
Redox depletions: Yes: No: X
Matrix color: 10YR 4/2
Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:

Rationale: This soil has a depleted matrix with iron masses. This soil meets the NRCS hydric soil indicator F3 (depleted matrix).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 6 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 August 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Floodplain Forest
Legal Description: Sec. 25, T3N, R9W
Location: 81 ft east of levee

HYDROLOGY

Inundated? Yes: No: X

Depth of standing water: n/a

Depth to saturated soil: > 50 in

Overview of hydrological flow through the system: This site receives water through precipitation and sheet flow from adjacent higher ground (a levee). Water leaves the site via evapotranspiration.

Size of watershed: < 5 mi²

Other field evidence observed: In 2011, none of the site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). However, it did satisfy the wetland hydrology criteria for more than 5% of the growing season, and has dominant hydrophytic vegetation and hydric soils.

Wetland hydrology: Yes: X No:

Rationale: This site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and also has hydrophytic vegetation and hydric soils.

DETERMINATION AND RATIONALE:

Is the site a wetland?

Yes: X No:

Rationale for decision:

Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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ROUTINE ON-SITE WETLAND DETERMINATION

Site 7 (page 1 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 October 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Meadow
Legal Description: Sec. 25, T3N, R9W
Location: 55 ft east of levee

Do normal environmental conditions exist at this site? Yes: X No:
Have the vegetation, soils, or hydrology been significantly disturbed? Yes: No: X

VEGETATION

Dominant Plant Species	Indicator Status	Stratum
1. <i>Bidens aristosa</i>	FACW	herb
2. <i>Carex hyalinolepis</i>	OBL	herb
3. <i>Leersia oryzoides</i>	OBL	herb
4. <i>Phragmites australis</i>	FACW+	herb

Percentage of dominant species that are OBL, FACW, FAC+, or FAC: 100%

Hydrophytic vegetation: Yes: X No:

Rationale: More than 50% of the dominants are OBL, FACW, FAC+ or FAC.

SOILS

Series and phase: NRCS mapped Wakeland silt loam, classified as Otter silt loam

On Madison County hydric soils list? Yes: No: X

Is the soil a histosol? Yes: No: X

Histic epipedon present? Yes: No: X

Redox concentrations: Yes: X No:

Redox depletions: Yes: No: X

Matrix color: 10YR 4/1

Other indicators: This soil is found in a low area.

Hydric soils: Yes: X No:

Rationale: This soil has a mollic surface with iron masses. This soil meets the NRCS hydric soil indicator F6 (redox dark surface).

ROUTINE ON-SITE WETLAND DETERMINATION

Site 7 (page 2 of 2)

Field Investigators: Ketzner and Keene **Date:** 24 October 2011
Project Name: Eckmann/Bischoff Wetland Mitigation Site
State: Illinois **County:** Madison
Applicant: IDOT District 8 **Site Name:** Wet Meadow
Legal Description: Sec. 25, T3N, R9W
Location: 55 ft east of levee

HYDROLOGY

Inundated? Yes: No: X

Depth of standing water: n/a

Depth to saturated soil: > 40 in

Overview of hydrological flow through the system: This site receives water through precipitation, sheet flow from adjacent higher ground, and possibly from backflow via Schneider Ditch. Water leaves the site via evapotranspiration.

Size of watershed: < 5 mi²

Other field evidence observed: In 2011, none of the site satisfied the wetland hydrology criteria for more than 12.5% of the growing season (Miner et al. 2011). However, it did satisfy the wetland hydrology criteria for more than 5% of the growing season, and has dominant hydrophytic vegetation and hydric soils.

Wetland hydrology: Yes: X No:

Rationale: This site satisfied the wetland hydrology criteria for more than 5% of the 2011 growing season, and also has hydrophytic vegetation and hydric soils.

DETERMINATION AND RATIONALE:

Is the site a wetland?

Yes: X No:

Rationale for decision:

Dominant hydrophytic vegetation, hydric soils, and wetland hydrology are all present. This site meets all of the wetland criteria. The NWI codes this site as U (upland).

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APPENDIX B

Wetland Plant Species List

Site 1 - Marsh

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Abutilon theophrasti</i>	velvet-leaf	herb	FACU-	*
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Alisma subcordatum</i>	broad-leaf water-plantain	herb	OBL	2
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Ampelopsis cordata</i>	raccoon grape	woody vine	FAC+	2
<i>Bolboschoenus fluvialis</i>	river bulrush	herb	OBL	3
<i>Cephalanthus occidentalis</i>	buttonbush	shrub	OBL	4
<i>Cyperus erythrorhizos</i>	red-rooted sedge	herb	OBL	1
<i>Cyperus odoratus</i>	galingale	herb	OBL	1
<i>Desmanthus illinoensis</i>	Illinois bundleflower	herb	FAC-	4
<i>Diospyros virginiana</i>	persimmon	tree	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Eleocharis erythropoda</i>	red-rooted spike rush	herb	OBL	3
<i>Eleocharis ovata obtusa</i>	spike rush	herb	OBL	2
<i>Eleocharis palustris</i>	marsh spikerush	herb	OBL	5
<i>Eragrostis hypnoides</i>	pony grass	herb	OBL	5
<i>Fraxinus lanceolata</i>	green ash	tree, sapling	FACW	2
<i>Hibiscus laevis</i>	halberd-leaved rose mallow	herb	OBL	4
<i>Humulus japonicus</i>	Japanese hops	herb	FACU	*
<i>Ipomoea lacunosa</i>	white morning-glory	herb	FACW	1
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lemna minor</i>	common duckweed	herb	OBL	3
<i>Leptochloa fascicularis</i>	salt meadow grass	herb	OBL	0
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Ludwigia peploides</i>	creeping primrose willow	herb	OBL	5
<i>Nelumbo lutea</i>	water lotus	herb	OBL	5
<i>Peltandra virginica</i>	arrow arum	herb	OBL	8
<i>Persicaria amphibium</i>	water smartweed	herb	OBL	3
<i>Persicaria hydropiperoides</i>	mild water pepper	herb	OBL	4
<i>Persicaria lapathifolia</i>	curttop lady's thumb	herb	FACW+	0
<i>Persicaria pensylvanica</i>	giant smartweed	herb	FACW+	1
<i>Persicaria punctata</i>	dotted smartweed	herb	OBL	3
<i>Persicaria vulgaris</i>	spotted lady's thumb	herb	FACW	*
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Polygonum sp.</i>	knotweed	herb	-----	--
<i>Populus deltoides</i>	eastern cottonwood	herb	FAC+	2
<i>Rorippa palustris</i>	marsh yellow cress	herb	OBL	4
<i>Sagittaria calycina</i>	arrowleaf	herb	OBL	6
<i>Sagittaria latifolia</i>	arrowhead	herb	OBL	4

* Non-native species

Species list continued on the following page.

Site 1 - Marsh (continued)

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Salix amygdaloides</i>	peach-leaved willow	tree, sapling	FACW	4
<i>Salix interior</i>	sandbar willow	herb	OBL	1
<i>Salix nigra</i>	black willow	tree	OBL	3
<i>Schoenoplectus tabernaemontani</i>	great bulrush	herb	OBL	4
<i>Typha angustifolia</i>	narrow-leaved cattail	herb	OBL	*
<i>Typha latifolia</i>	cattail	herb	OBL	1
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

* Non-native species

mCv = 2.7

FQI = 18.1

Site 2 - Wet Floodplain Forest

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acer saccharinum</i>	silver maple	sapling	FACW	1
<i>Alisma subcordatum</i>	broad-leaf water-plantain	herb	OBL	2
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Bolboschoenus fluvialis</i>	river bulrush	herb	OBL	3
<i>Cyperus erythrorhizos</i>	red-rooted sedge	herb	OBL	1
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Eleocharis erythropoda</i>	red-rooted spike rush	herb	OBL	3
<i>Fraxinus lanceolata</i>	green ash	tree, sapling, shrub	FACW	2
<i>Ipomoea lacunosa</i>	white morning-glory	herb	FACW	1
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Ludwigia peploides</i>	creeping primrose willow	herb	OBL	5
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Persicaria hydropiperoides</i>	mild water pepper	herb	OBL	4
<i>Persicaria lapathifolia</i>	curttop lady's thumb	herb	FACW+	0
<i>Persicaria pensylvanica</i>	giant smartweed	herb	FACW+	1
<i>Persicaria vulgaris</i>	spotted lady's thumb	herb	FACW	*
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Platanus occidentalis</i>	sycamore	tree, sapling	FACW	3
<i>Sagittaria latifolia</i>	arrowhead	herb	OBL	4
<i>Schoenoplectus tabernaemontani</i>	great bulrush	herb	OBL	4
<i>Sium suave</i>	water parsnip	herb	OBL	5
<i>Typha angustifolia</i>	narrow-leaved cattail	herb	OBL	*
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

* Non-native species

mCv = 2.4

FQI = 11.8

Site 3 - Wet Floodplain Forest

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Alisma subcordatum</i>	broad-leaf water-plantain	herb	OBL	2
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2
<i>Aster lanceolatus</i>	panicled aster	herb	FACW	3
<i>Bidens frondosa</i>	common beggar-ticks	herb	FACW	1
<i>Bolboschoenus fluviatilis</i>	river bulrush	herb	OBL	3
<i>Carex hyalinolepis</i>	shoreline sedge	herb	OBL	4
<i>Cyperus acuminatus</i>	taperleaf flat sedge	herb	OBL	2
<i>Cyperus odoratus</i>	galingale	herb	OBL	1
<i>Diospyros virginiana</i>	persimmon	shrub	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Fraxinus lanceolata</i>	green ash	tree, sapling, shrub	FACW	2
<i>Ipomoea lacunosa</i>	white morning-glory	herb	FACW	1
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Liquidambar styraciflua</i>	sweet gum	shrub	FACW	6
<i>Morus alba</i>	white mulberry	herb	FAC	*
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Persicaria amphibium</i>	water smartweed	herb	OBL	3
<i>Persicaria punctata</i>	dotted smartweed	herb	OBL	3
<i>Persicaria vulgaris</i>	spotted lady's thumb	herb	FACW	*
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Platanus occidentalis</i>	sycamore	sapling	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	tree, sapling	FAC+	2
<i>Sagittaria latifolia</i>	arrowhead	herb	OBL	4
<i>Salix amygdaloides</i>	peach-leaved willow	tree, sapling, shrub	FACW	4
<i>Salix interior</i>	sandbar willow	tree, sapling	OBL	1
<i>Salix nigra</i>	black willow	tree	OBL	3
<i>Typha latifolia</i>	cattail	herb	OBL	1
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

* Non-native species

mCv = 2.1

FQI = 12.0

Site 4 - Wet Floodplain Forest

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0
<i>Acer negundo</i>	box elder	tree, sapling, shrub	FACW-	1
<i>Acer saccharinum</i>	silver maple	tree, sapling, shrub	FACW	1
<i>Agalinis gattereri</i>	Gatterer's false foxglove	herb	UPL	10
<i>Alisma subcordatum</i>	broad-leaf water-plantain	herb	OBL	2
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Ammannia coccinea</i>	long-leaved ammannia	herb	OBL	5
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Aster lanceolatus</i>	panicked aster	herb	FACW	3
<i>Aster ontarionis</i>	Ontario aster	herb	FAC	4
<i>Bidens frondosa</i>	common beggar-ticks	herb	FACW	1
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Boltonia decurrens</i>	false aster	herb	OBL	4
<i>Campsis radicans</i>	trumpet creeper	woody vine, herb	FAC	2
<i>Carex brachyglossa</i>	yellow fox sedge	herb	FACW	3
<i>Carex crus-corvi</i>	sedge	herb	OBL	6
<i>Carex hyalinolepis</i>	shoreline sedge	herb	OBL	4
<i>Carex lupulina</i>	hop sedge	herb	OBL	5
<i>Carex</i> sp.	sedge	herb	-----	--
<i>Carex tribuloides</i>	sedge	herb	FACW+	3
<i>Cinna arundinacea</i>	stout wood reed	herb	FACW	5
<i>Cirsium discolor</i>	field thistle	herb	UPL	3
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Cuscuta</i> sp.	dodder	herb	-----	--
<i>Cynanchum laeve</i>	blue vine	herb	FAC	1
<i>Cyperus acuminatus</i>	taperleaf flat sedge	herb	OBL	2
<i>Cyperus odoratus</i>	galingale	herb	OBL	1
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Eclipta prostrata</i>	yerba de tajo	herb	FACW	2
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erechtites hieracifolia</i>	fireweed	herb	FACU	2
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Fallopia scandens</i>	climbing buckwheat	herb	FAC	2
<i>Festuca arundinacea</i>	tall fescue	herb	FACU+	*
<i>Fraxinus lanceolata</i>	green ash	tree, sapling, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Helianthus tuberosus</i>	Jerusalem artichoke	herb	FAC	3
<i>Humulus japonicus</i>	Japanese hops	herb	FACU	*
<i>Ipomoea lacunosa</i>	white morning-glory	herb	FACW	1
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Leersia virginica</i>	white grass	herb	FACW	4

* Non-native species

Species list continued on the following page.

Site 4 - Wet Floodplain Forest (continued)

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Lespedeza cuneata</i>	sericea lespedeza	herb	UPL	*
<i>Lindernia dubia</i>	false pimpernel	herb	OBL	5
<i>Ludwigia peploides</i>	creeping primrose willow	herb	OBL	5
<i>Lycopus americanus</i>	common water horehound	herb	OBL	3
<i>Lycopus virginicus</i>	bugle weed	herb	OBL	5
<i>Mentha arvensis villosa</i>	field mint	herb	FACW	4
<i>Mimulus alatus</i>	winged monkey flower	herb	OBL	6
<i>Morus alba</i>	white mulberry	tree, sapling, shrub	FAC	*
<i>Muhlenbergia frondosa</i>	common satin grass	herb	FACW	3
<i>Penthorum sedoides</i>	ditch stonecrop	herb	OBL	2
<i>Persicaria bicornis</i>	smartweed	herb	FAC	2
<i>Persicaria cespitosa</i>	creeping smartweed	herb	UPL	*
<i>Persicaria lapathifolia</i>	curttop lady's thumb	herb	FACW+	0
<i>Persicaria punctata</i>	dotted smartweed	herb	OBL	3
<i>Persicaria vulgaris</i>	spotted lady's thumb	herb	FACW	*
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	*
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Platanus occidentalis</i>	sycamore	tree, sapling	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	tree, sapling, shrub	FAC+	2
<i>Rubus</i> sp.	blackberry	shrub	-----	--
<i>Rumex altissimus</i>	pale dock	herb	FACW-	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	*
<i>Salix amygdaloides</i>	peach-leaved willow	tree, sapling, shrub	FACW	4
<i>Salix interior</i>	sandbar willow	shrub	OBL	1
<i>Salix nigra</i>	black willow	tree, sapling, shrub	OBL	3
<i>Samolus parviflorus</i>	brookweed	herb	OBL	5
<i>Scutellaria lateriflora</i>	mad-dog skullcap	herb	OBL	5
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	*
<i>Sium suave</i>	water parsnip	herb	OBL	5
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Sorghum halepense</i>	Johnson grass	herb	FACU	*
<i>Teucrium canadense</i>	American germander	herb	FACW-	3
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Typha angustifolia</i>	narrow-leaved cattail	herb	OBL	*
<i>Ulmus americana</i>	American elm	tree, sapling, shrub	FACW-	5
<i>Verbena urticifolia</i>	white vervain	herb	FAC+	3
<i>Vitis aestivalis</i>	summer grape	woody vine	FACU	4
<i>Vitis riparia</i>	riverbank grape	woody vine	FACW-	2
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

* Non-native species

mCv = 2.9

FQI = 24.0

Site 5 - Shrubland

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0
<i>Acer negundo</i>	box elder	shrub	FACW-	1
<i>Agalinis gattereri</i>	Gatterer's false foxglove	herb	UPL	10
<i>Allium vineale</i>	field garlic	herb	FACU	*
<i>Amaranthus tuberculatus</i>	tall waterhemp	herb	OBL	1
<i>Ambrosia artemisiifolia</i>	common ragweed	herb	FACU	0
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Ampelopsis cordata</i>	raccoon grape	woody vine	FAC+	2
<i>Amphicarpaea bracteata</i>	hog peanut	herb	FAC	4
<i>Andropogon virginicus</i>	broom sedge	herb	FAC-	1
<i>Apios americana</i>	groundnut	herb	FACW	3
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0
<i>Asparagus officinalis</i>	garden asparagus	herb	FACU	*
<i>Aster pilosus</i>	hairy aster	herb	FACU-	0
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1
<i>Bromus commutatus</i>	hairy brome	herb	UPL	*
<i>Calystegia sepium</i>	bindweed	herb	FAC	1
<i>Carex brachyglossa</i>	yellow fox sedge	herb	FACW	3
<i>Carex frankii</i>	sedge	herb	OBL	4
<i>Carex hyalinolepis</i>	shoreline sedge	herb	OBL	4
<i>Carex</i> sp.	sedge	herb	-----	--
<i>Catalpa speciosa</i>	catalpa	shrub	FACU	0
<i>Celtis occidentalis</i>	hackberry	shrub	FAC-	3
<i>Cephalanthus occidentalis</i>	buttonbush	shrub	OBL	4
<i>Cinna arundinacea</i>	stout wood reed	herb	FACW	5
<i>Cirsium discolor</i>	field thistle	herb	UPL	3
<i>Conyza canadensis</i>	horseweed	herb	FAC-	0
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Cynanchum laeve</i>	blue vine	herb	FAC	1
<i>Daucus carota</i>	Queen-Anne's-lace	herb	UPL	*
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Desmodium</i> sp.	tick trefoil	herb	-----	--
<i>Diospyros virginiana</i>	persimmon	tree, sapling, shrub	FAC	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Elaeagnus umbellata</i>	autumn olive	shrub	UPL	*
<i>Elymus canadensis</i>	Canada wild rye	herb	FAC-	4
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Erianthus ravennae</i>	plume grass	herb	FACW	*
<i>Erigeron annuus</i>	annual fleabane	herb	FAC-	1
<i>Eupatorium altissimum</i>	tall boneset	herb	FACU	2
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1

* Non-native species

Species list continued on the following page.

Site 5 - Shrubland (continued)

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Fallopia scandens</i>	climbing buckwheat	herb	FAC	2
<i>Festuca arundinacea</i>	tall fescue	herb	FACU+	*
<i>Fraxinus americana</i>	white ash	sapling	FACU	4
<i>Fraxinus lanceolata</i>	green ash	tree, sapling, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Gleditsia triacanthos</i>	honey locust	shrub	FAC	2
<i>Helianthus tuberosus</i>	Jerusalem artichoke	herb	FAC	3
<i>Humulus japonicus</i>	Japanese hops	herb	FACU	*
<i>Ipomoea hederacea</i>	ivy-leaved morning glory	herb	FAC	*
<i>Juniperus virginiana</i>	eastern red cedar	sapling/shrub	FACU	1
<i>Lactuca canadensis</i>	Canada lettuce	herb	FACU+	1
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lespedeza cuneata</i>	sericea lespedeza	herb	UPL	*
<i>Liquidambar styraciflua</i>	sweet gum	shrub	FACW	6
<i>Lobelia siphilitica</i>	blue cardinal-flower	herb	FACW+	4
<i>Lonicera japonica</i>	Japanese honeysuckle	woody vine	FACU	*
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	*
<i>Lycopus americanus</i>	common water horehound	herb	OBL	3
<i>Lysimachia nummularia</i>	moneywort	herb	FACW+	*
<i>Melilotus albus</i>	white sweet clover	herb	FACU	*
<i>Morus alba</i>	white mulberry	tree, sapling/shrub	FAC	*
<i>Muhlenbergia frondosa</i>	common satin grass	herb	FACW	3
<i>Oenothera biennis</i>	evening primrose	herb	FACU	1
<i>Paspalum pubiflorum glabrum</i>	beadgrass	herb	FACW	3
<i>Persicaria lapathifolia</i>	curttop lady's thumb	herb	FACW+	0
<i>Persicaria pensylvanica</i>	giant smartweed	herb	FACW+	1
<i>Persicaria punctata</i>	dotted smartweed	herb	OBL	3
<i>Persicaria vulgaris</i>	spotted lady's thumb	herb	FACW	*
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Platanus occidentalis</i>	sycamore	tree, sapling, shrub	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	tree, sapling, shrub	FAC+	2
<i>Pyrus calleryana</i>	Bradford pear	shrub	UPL	*
<i>Robinia pseudoacacia</i>	black locust	tree, sapling, shrub	FACU-	*
<i>Rubus trivialis</i>	southern dewberry	herb	FACU+	5
<i>Rumex crispus</i>	curly dock	herb	FAC+	*
<i>Salix amygdaloides</i>	peach-leaved willow	shrub	FACW	4
<i>Salix interior</i>	sandbar willow	sapling, shrub	OBL	1
<i>Salix nigra</i>	black willow	shrub	OBL	3
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	*
<i>Silphium perfoliatum</i>	cup plant	herb	FACW-	4
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Sorghastrum nutans</i>	Indian grass	herb	FACU+	4
<i>Sorghum halepense</i>	Johnson grass	herb	FACU	*

* Non-native species

Species list continued on the following page.

Site 5 - Shrubland (continued)

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Stachys tenuifolia</i>	hedge nettle	herb	OBL	5
<i>Strophostyles helvola</i>	wild bean	herb	FAC+	3
<i>Symphoricarpos orbiculatus</i>	coralberry	shrub	FACU	1
<i>Torilis japonica</i>	hedge parsley	herb	UPL	*
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Tridens flavus</i>	purple-top	herb	UPL	1
<i>Typha latifolia</i>	cattail	herb	OBL	1
<i>Ulmus americana</i>	American elm	shrub, herb	FACW-	5
<i>Ulmus pumila</i>	Siberian elm	shrub	UPL	*
<i>Verbena urticifolia</i>	white vervain	herb	FAC+	3
<i>Vitis cinerea</i>	winter grape	woody vine	FACW-	4
<i>Xanthium strumarium</i>	cockle bur	herb	FAC	0

* Non-native species

mCv = 2.4

FQI = 20.0

Site 6 - Wet Floodplain Forest

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acalypha rhomboidea</i>	three-seeded mercury	herb	FACU	0
<i>Acer negundo</i>	box elder	herb	FACW-	1
<i>Agalinis gattereri</i>	Gatterer's false foxglove	herb	UPL	10
<i>Allium vineale</i>	field garlic	herb	FACU	*
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Amphicarpaea bracteata</i>	hog peanut	herb	FAC	4
<i>Antennaria virginiana</i>	Virginia knotweed	herb	FAC	3
<i>Apocynum cannabinum</i>	dogbane	herb	FAC	2
<i>Asclepias syriaca</i>	common milkweed	herb	UPL	0
<i>Aster lateriflorus</i>	side-flowered aster	herb	FACW-	2
<i>Aster pilosus</i>	hairy aster	herb	FACU-	0
<i>Boehmeria cylindrica</i>	false nettle	herb	OBL	3
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Carex</i> sp.	sedge	herb	-----	--
<i>Carex vulpinoidea</i>	fox sedge	herb	OBL	3
<i>Chenopodium album</i>	lamb's quarters	herb	FAC-	*
<i>Cinna arundinacea</i>	stout wood reed	herb	FACW	5
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Cuscuta gronovii</i>	dodder	herb	FACW	2
<i>Desmodium paniculatum</i>	panicked tick trefoil	herb	FACU	2
<i>Echinochloa muricata</i>	barnyard grass	herb	OBL	0
<i>Elaeagnus umbellata</i>	autumn olive	shrub	UPL	*
<i>Elymus virginicus</i>	Virginia wild rye	herb	FACW-	4
<i>Eupatorium altissimum</i>	tall boneset	herb	FACU	2
<i>Fallopia scandens</i>	climbing buckwheat	herb	FAC	2
<i>Festuca arundinacea</i>	tall fescue	herb	FACU+	*
<i>Fraxinus lanceolata</i>	green ash	tree, sapling, shrub	FACW	2
<i>Geum canadense</i>	white avens	herb	FAC	2
<i>Hackelia virginiana</i>	stickseed	herb	FAC-	1
<i>Helianthus tuberosus</i>	Jerusalem artichoke	herb	FAC	3
<i>Humulus japonicus</i>	Japanese hops	herb	FACU	*
<i>Juniperus virginiana</i>	eastern red cedar	shrub	FACU	1
<i>Lactuca canadensis</i>	Canada lettuce	herb	FACU+	1
<i>Lespedeza cuneata</i>	sericea lespedeza	herb	UPL	*
<i>Lonicera maackii</i>	Amur honeysuckle	shrub	UPL	*
<i>Melilotus albus</i>	white sweet clover	herb	FACU	*
<i>Monarda fistulosa</i>	wild bergamot	herb	FACU	4
<i>Muhlenbergia frondosa</i>	common satin grass	herb	FACW	3
<i>Parthenocissus quinquefolia</i>	Virginia creeper	woody vine	FAC-	2
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Platanus occidentalis</i>	sycamore	tree, sapling, shrub	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	tree, shrub	FAC+	2
<i>Senna marilandica</i>	Maryland senna	herb	FACW	4

* Non-native species

Species list continued on the following page.

Site 6 - Wet Floodplain Forest (continued)

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Setaria faberi</i>	giant foxtail	herb	FACU+	*
<i>Silphium perfoliatum</i>	cup plant	herb	FACW-	4
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Sorghum halepense</i>	Johnson grass	herb	FACU	*
<i>Strophostyles helvola</i>	wild bean	herb	FAC+	3
<i>Torilis japonica</i>	hedge parsley	herb	UPL	*
<i>Toxicodendron radicans</i>	poison ivy	woody vine, herb	FAC+	1
<i>Ulmus americana</i>	American elm	shrub, herb	FACW-	5
<i>Verbena urticifolia</i>	white vervain	herb	FAC+	3
<i>Vitis aestivalis</i>	summer grape	woody vine	FACU	4
<i>Vitis riparia</i>	riverbank grape	woody vine	FACW-	2

* Non-native species

mCv = 2.5

FQI = 16.1

Site 7 - Wet Meadow

SPECIES LIST (Dominant species and strata indicated by bold)

Scientific name	Common name	Stratum	Wetland indicator status	Coefficient of conservatism
<i>Acer negundo</i>	box elder	sapling, shrub	FACW-	1
<i>Acer saccharinum</i>	silver maple	herb	FACW	1
<i>Agalinis gattereri</i>	Gatterer's false foxglove	herb	UPL	10
<i>Ambrosia trifida</i>	giant ragweed	herb	FAC+	0
<i>Asclepias incarnata</i>	swamp milkweed	herb	OBL	4
<i>Aster lanceolatus</i>	panicled aster	herb	FACW	3
<i>Bidens aristosa</i>	swamp marigold	herb	FACW	1
<i>Boltonia asteroides</i>	false aster	herb	FACW	5
<i>Carex crus-corvi</i>	sedge	herb	OBL	6
<i>Carex frankii</i>	sedge	herb	OBL	4
<i>Carex hyalinolepis</i>	shoreline sedge	herb	OBL	4
<i>Carex lupulina</i>	hop sedge	herb	OBL	5
<i>Cornus drummondii</i>	rough-leaved dogwood	shrub	FAC	2
<i>Eupatorium serotinum</i>	late boneset	herb	FAC+	1
<i>Fraxinus lanceolata</i>	green ash	sapling, shrub	FACW	2
<i>Iva annua</i>	marsh elder	herb	FAC	0
<i>Juncus</i> sp.	rush	herb	-----	--
<i>Leersia oryzoides</i>	rice cutgrass	herb	OBL	3
<i>Lespedeza cuneata</i>	sericea lespedeza	herb	UPL	*
<i>Lycopus americanus</i>	common water horehound	herb	OBL	3
<i>Persicaria punctata</i>	dotted smartweed	herb	OBL	3
<i>Phalaris arundinacea</i>	reed canary grass	herb	FACW+	*
<i>Phragmites australis</i>	common reed	herb	FACW+	*
<i>Phyla lanceolata</i>	fog-fruit	herb	OBL	1
<i>Platanus occidentalis</i>	sycamore	shrub	FACW	3
<i>Populus deltoides</i>	eastern cottonwood	sapling, shrub	FAC+	2
<i>Rumex crispus</i>	curly dock	herb	FAC+	*
<i>Salix amygdaloides</i>	peach-leaved willow	shrub	FACW	4
<i>Salix interior</i>	sandbar willow	shrub	OBL	1
<i>Salix nigra</i>	black willow	shrub	OBL	3
<i>Scirpus atrovirens</i>	bulrush	herb	OBL	4
<i>Solidago canadensis</i>	Canada goldenrod	herb	FACU	1
<i>Solidago gigantea</i>	late goldenrod	herb	FACW	3
<i>Teucrium canadense</i>	American germander	herb	FACW-	3
<i>Typha angustifolia</i>	narrow-leaved cattail	herb	OBL	*
<i>Ulmus americana</i>	American elm	herb	FACW-	5

* Non-native species

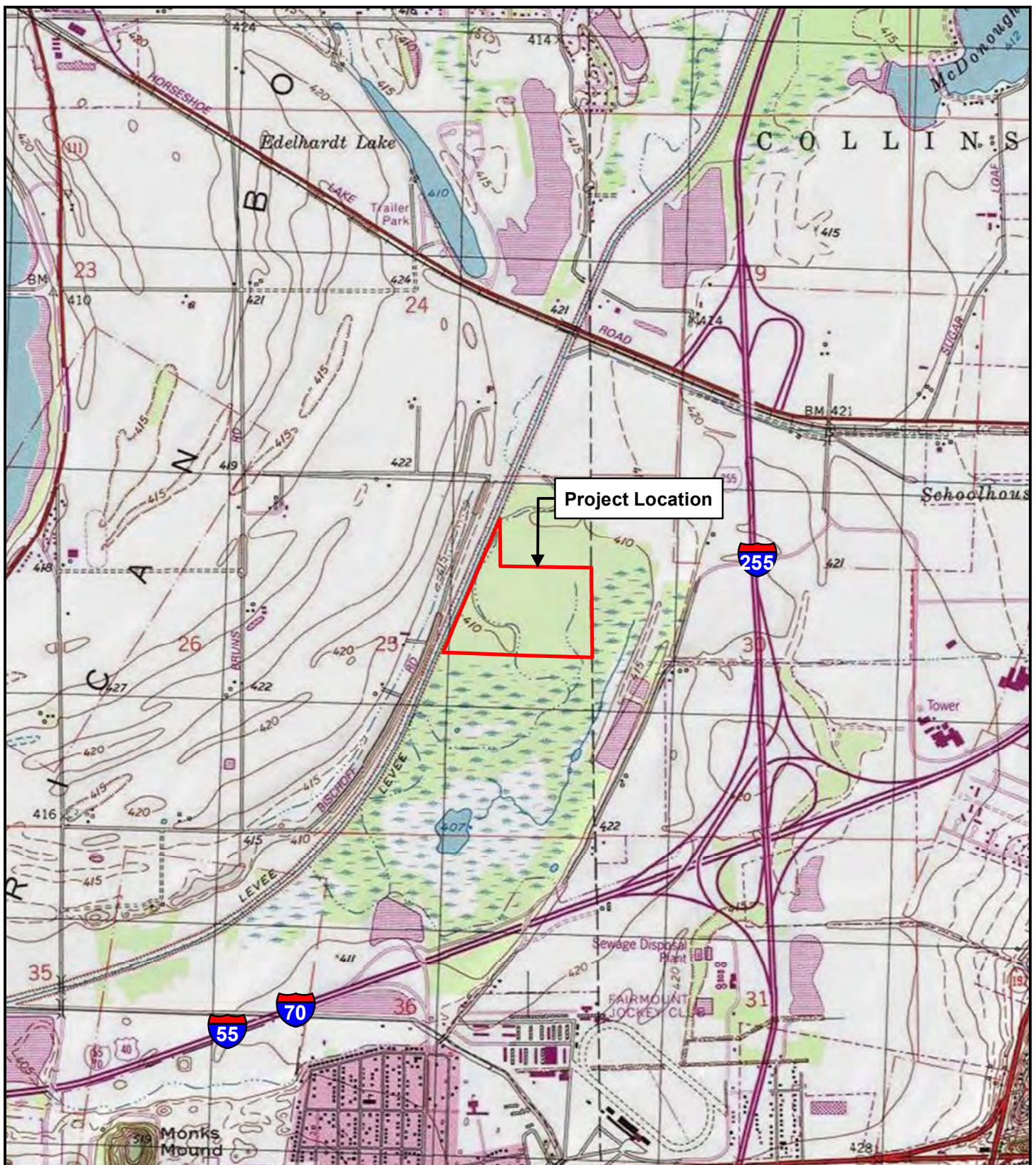
mCv = 2.9

FQI = 16.1

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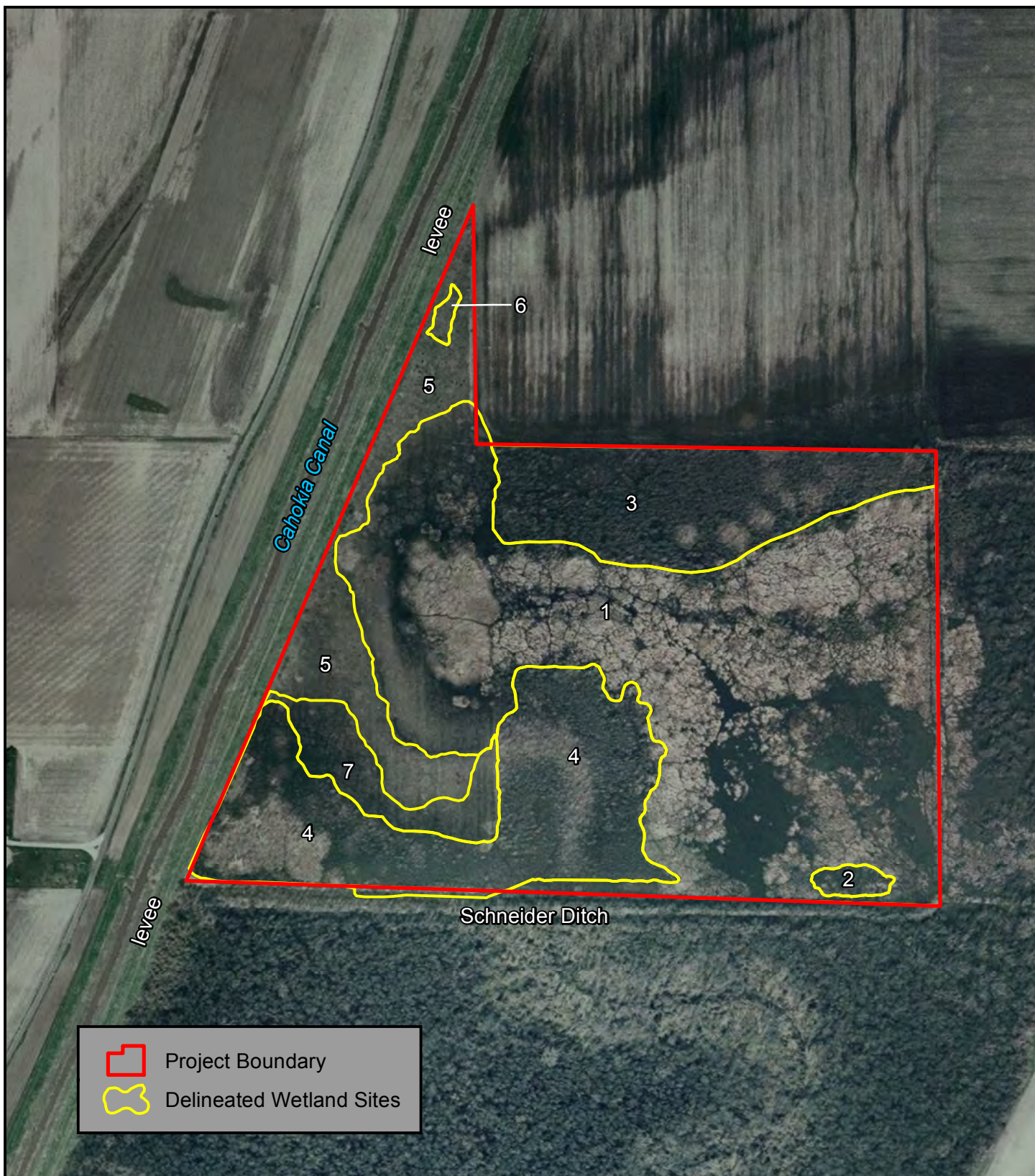
Wetland Science Program
 Illinois Natural History Survey
 Prairie Research Institute
 1816 South Oak Street
 Champaign, Illinois 61820

Project Location Map
Eckmann / Bischoff Wetland Mitigation Site
Madison County, Illinois - 2011

0 Meters 500 0 Feet 2,000
 1 : 24,000 1 inch : 2,000 feet

02/2012
 Figure 1





Project Boundary

Delineated Wetland Sites



Wetland Science Program
 Illinois Natural History Survey
 Prairie Research Institute
 1816 South Oak Street
 Champaign, Illinois 61820

Wetland Delineation Map
Eckmann / Bischoff Wetland Mitigation Site
Madison County, Illinois - 2011

0 Meters 100

 1 : 4,800

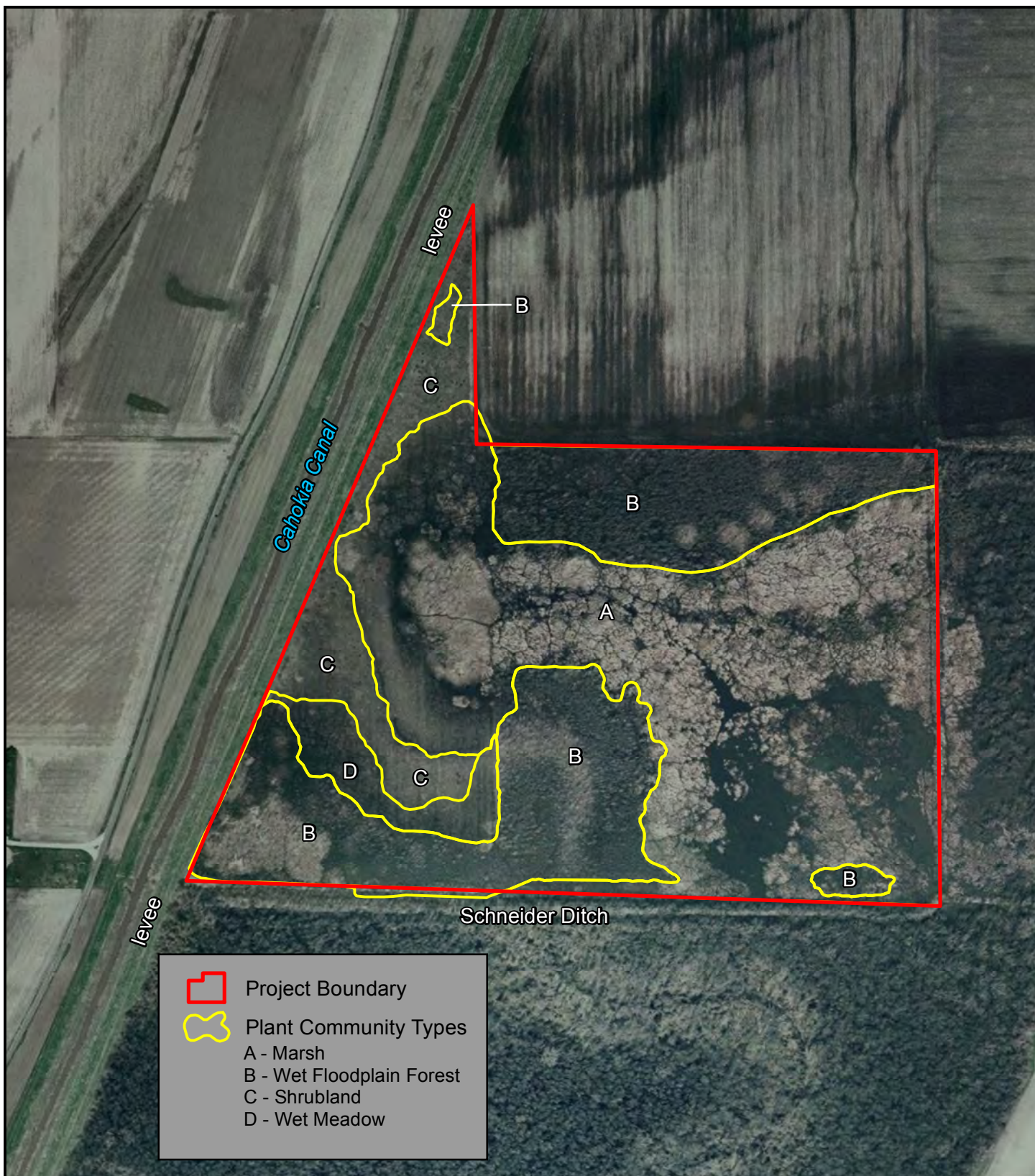
0 Feet 400

 1 inch : 400 feet

02/2012

Figure 3





Wetland Science Program
 Illinois Natural History Survey
 Prairie Research Institute
 1816 South Oak Street
 Champaign, Illinois 61820

Plant Communities Map
Eckmann / Bischoff Wetland Mitigation Site
Madison County, Illinois - 2011

0 Meters 100
 1 : 4,800

0 Feet 400
 1 inch : 400 feet

02/2012

Figure 4



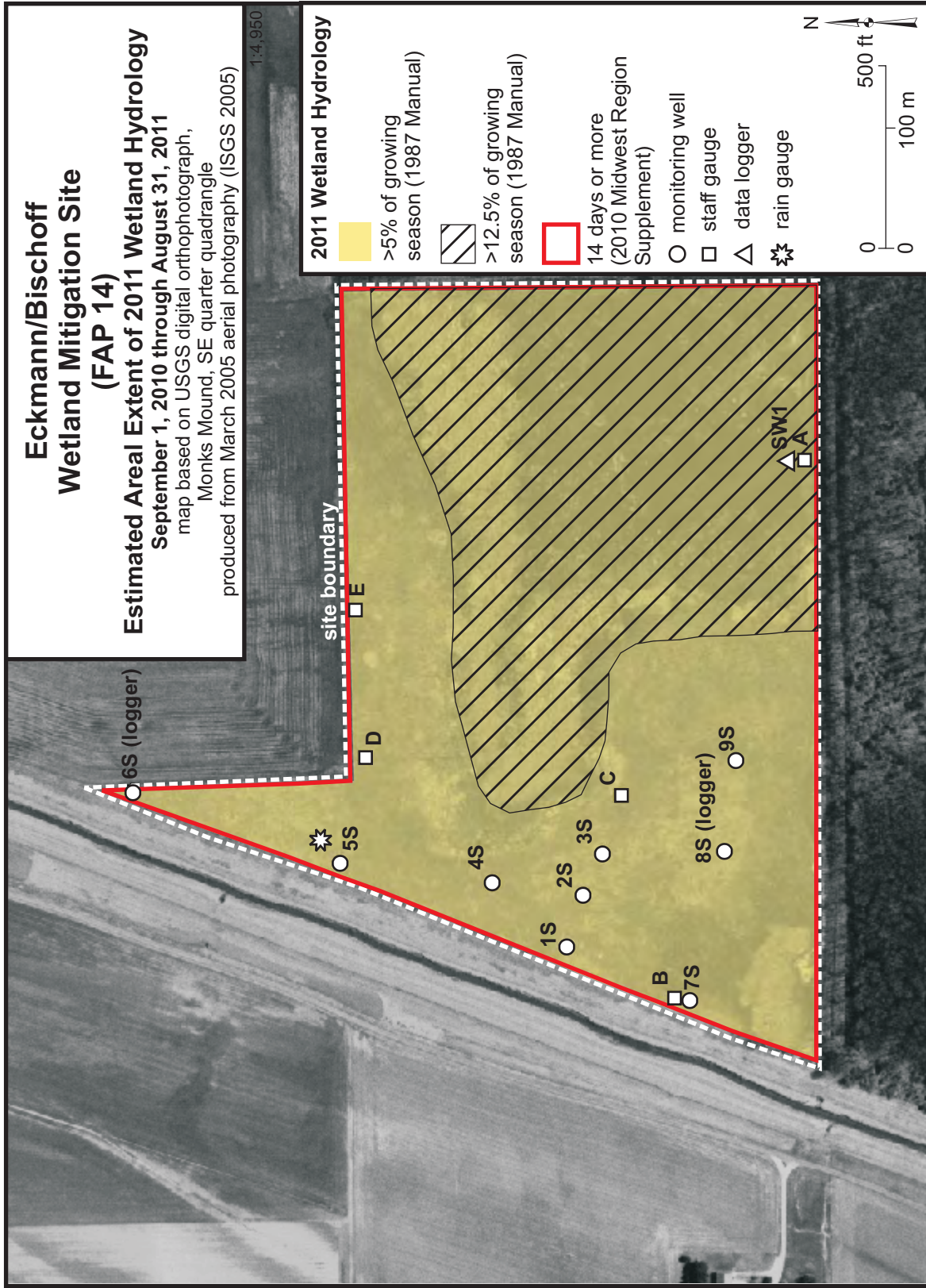


Figure 5 (from Miner et al. 2011)